

REMARKS

Applicants appreciate the Examiner's thorough consideration provided the present application. Claims 1-5 are present in the application. Claim 5 has been added for the Examiner's consideration. Claim 1 is independent. Reconsideration of this application, as amended, is respectfully requested.

Claim Rejections Under 35 U.S.C. § 103

Claim 1 stands rejected under 35 U.S.C. §103(a) as being unpatentable over Popat, U.S. Patent No. 6,678,415 (hereinafter Popat), in view of Hoshino, U.S. Patent No. 6,868,189 (hereinafter Hoshino). Claims 2-4 stand rejected under 35 U.S.C. §103(a) as being unpatentable over Popat in view of Hoshino, and further in view of Otsuka et al., U.S. Patent No. 6,700,674 (hereinafter Otsuka). These rejections are respectfully traversed.

The present invention as recited in independent claim 1 is directed to a "distributed document handling system for carrying out jobs, where jobs are carried out by services distributed over a network and where a job leads to a product." Independent claim 1 recites a combination of elements including "a pool of services, the services being distributed over a number of interconnected processing devices." Applicants respectfully submit that the Popat reference relied on by the Examiner is entirely different from the presently claimed invention.

Popat discloses a process, running in one computer, where calculations make use of a graph-modeled algorithm to solve the problem of decoding an image in a particular way. In distinction, the presently claimed invention relates to a set of services available on a physical,

real network. The presently claimed invention is therefore directed to a technical field that is quite different from the technical field of Popat.

In the Examiner's Office Action, the Examiner appears to have taken the position that the term "network" mentioned in Popat relates to a computer network in the physical world as in the presently claimed invention. Specifically, the Examiner states "a pool of services, the services being distributed over a number of interconnected processing devices (*col. 15, lines 53-67 through col. 16, lines 1-20, Abstract, etc.*)" Applicants respectfully submit that the Examiner's understanding is incorrect. The term "network" as used in Popat refers to a mathematical notion and not at all to a physical computer network as in the presently claimed invention.

To substantiate the above position, Applicants provide the Examiner with the following comments:

1). Column 2, line 30: "Decoding a document image using the DID system involves the search for the path through the finite state network representing the observed image document that is the most likely path that would have produced the observed image." Apparently, the network is a finite state network that represents the image document and not a physical network as in the presently claimed invention.

2). Column 4, line 50: "The language model is then incorporated into the stochastic finite network representation of the image." From this it is clear that a mathematical representation of the image and not a physical network is being referred to. It is not possible to incorporate a language model in a physical network.

3). Column 6, line 45: "Once the path is identified, a network expansion operation is performed for nodes on the best path in order to expand the network with new nodes and branches reflecting paths with explicit character histories based on the estimated best path of the just-completed iteration." One can understand that network expansion as described is not possible in a physical communication network.

4). Column 7, line 4: "The language model techniques of the present invention may be used in any text line decoder that uses as input a stochastic finite state network to model the document image layout of the document image being decoded, and where branch scores in the image network change over time, requiring iteration of the dynamic programming operation." One will understand that a physical network cannot be used as input for something.

5). Figure 12 illustrates a network expansion operation (column 9, line 25): It is clear that this is an operation on a network as a mathematical notion.

6). Figure 15 (column 9, line 38) shows such a network.

In view of the above, the term "network" as used in the Popat disclosure is a mathematical notion and this mathematical notion is used in the mathematical operation of decoding. The term "network" is not at all related to the term "network" as used in the presently claimed invention.

In present claim 1, the pool of services is recited as being "distributed over a number of interconnected processing devices." As can be understood from, for example, Figure 1 and page 8, lines 5-15 of the present specification, the processing devices 102-109 are interconnected by the network 110. The processing devices are, for instance, a copier/printer, a scanner, etc. Since

the Popat reference does not disclose a physical network, this reference is insufficient to disclose a pool of services distributed over “a number of interconnected processing devices” as in the presently claimed invention. In Popat, the “services,” which are presumed to be the various decoding steps, are all performed on a single processor 140. In view of this, Popat fails to disclose this aspect of the presently claimed invention.

In the Examiner’s Office Action, the Examiner considers the determining means for determining a path of services to be disclosed at column 6, lines 44-67 and column 5, lines 61-67 of Popat. However, in Popat, services are not available at each node. Each node represents a kind of state of the image to be decoded. The network containing the nodes is used to model the document image layout of the document image being decoded (see column 7, line 5). Therefore, the Popat network (and searching a path through this network for decoding) is absolutely unrelated to the network of services in the presently claimed invention. Therefore, Popat fails to disclose this aspect of the present invention as well.

With regard to the Examiner’s reliance on the Hoshino reference, Applicants respectfully submit that this reference fails to make up for the deficiencies of Popat. Specifically, the Examiner recognizes that the Popat reference fails to disclose “specifying means for entering by a user a job specification comprising product specifications specifying the product to be delivered by the job and specifications specifying circumstantial constraints without effect on the product, in considering selection from the pool of services” and “determining means for determining a path of services, the services being selected from the pool of services, wherein the

path is suitable to carry out the job in accordance with the product specifications, and wherein the determining means is operable to take into account circumstantial constraints for that job".

Applicants respectfully submit that one having ordinary skill in the art would not be motivated to modify Popat in view of Hoshino to arrive at the presently claimed invention. Specifically, the Examiner has taken the position that it would be obvious to modify Popat to add the user interface of Hoshino. However, the Popat disclosure is directed to a text recognition system that is intended to be an automatic process. Enabling user intervention would slow down this automatic process considerably. In view of this, modifying Popat to include a user interface that enables a job specification to be entered by a user would not have been obvious to one having ordinary skill in the art.

In addition, even if *arguendo* it would be obvious to include a user interface in Popat, there is certainly no suggestion in Hoshino to further modify Popat to enable modification of a previous job specification that was entered by the user at the user interface. Specifically, claim 1 recites "user interface means for, after the paths have been presented, enabling modification of the job specification by the user." Although the filtering operation of Hoshino may be modified after a first filtering operation has occurred by filtering the image a second time, Applicants submit that there would be no reason to modify the decoding operation once a first decoding operation has occurred. In view of this, the combination of references relied on by the Examiner fail to disclose the presently claimed invention for this additional reason.

With regard to the Examiner's position that having a circumstantial constraint that has no effect on the product is "merely a design choice within the user interface," Applicants

respectfully submit that the Examiner has not established a *prima facie* case of obviousness. In order to establish a *prima facie* case of obviousness, the Examiner must provide a teaching in the prior art to modify a particular reference to arrive at the presently claimed invention. In the present situation, the Examiner has not provided any suggestion in the prior art. In view of this, the Examiner's rejection is improper and should be withdrawn.

In addition, Applicants submit that having a circumstantial constraint that has no effect on the product would be contrary to the teachings of Popat and therefore non obvious. Popat discloses that

A key constraint necessary to ensure optimal decoding with respect to the language model is that each node in the graph have the proper language model score... attached to the best incoming branch to that node. *Failure to observe this constraint may cause the dynamic programming operation to reject a path through the graph that is an actual best path because of an incorrect score attached to a branch.* (See col. 6, lines 63-67; col. 7, lines 1-3. Emphasis added.)

In other words, the upper bound score of each node in the path has a significant effect on the final product of the text recognition when taking into account the upper bound score of each node to determine the best path. In view of this, if one were to modify the Popat reference such that there was no effect on the final product, it would be contrary to the teachings of Popat.

With regard to the Examiner's reliance on Otsuka, this reference has only been relied on for its teachings relating to the subject matter of dependent claims. Otsuka also fails to disclose the above combination of elements as set forth in amended independent claim 1. Accordingly, Otsuka also fails to cure the deficiencies of Popat and Gell et al.

Accordingly, none of the references utilized by the Examiner individually or in combination teach or suggest the limitations of independent claim 1 or its dependent claims.

Therefore, Applicants respectfully submit that claim 1 and its dependent claims clearly define over the teachings of the references relied on by the Examiner.

Accordingly, reconsideration and withdrawal of the rejections under 35 U.S.C. § 103 are respectfully requested.

Additional claims

Additional claim 5 has been added for the Examiner's consideration. Applicants respectfully submit that claim 5 is allowable due to its dependence on independent claim 1, as well as due to the additional recitations in this claim.

Favorable consideration and allowance of additional claim 5 are respectfully requested.

CONCLUSION

All the stated grounds of rejection have been properly traversed and/or rendered moot. Applicants therefore respectfully request that the Examiner reconsider all presently pending rejections and that they be withdrawn.

It is believed that a full and complete response has been made to the Office Action, and that as such, the Examiner is respectfully requested to send the application to Issue.

In the event there are any matters remaining in this application, the Examiner is invited to contact the undersigned at (703) 205-8000 in the Washington, D.C. area.

Application No.: 09/974,911
Amendment dated September 8, 2006
Reply to Office Action of June 8, 2006

Docket No.: 0142-0362P

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If necessary, the Commissioner is hereby authorized in this, concurrent, and future replies, to charge payment or credit any overpayment to Deposit Account No. 02-2448 for any additional fees required under 37 C.F.R. §§1.16 or 1.17; particularly, extension of time fees.

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Respectfully submitted,

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